

Medical Risk Management

An educational monograph brought to you by Comprehensive NeuroScience, Inc.



Comprehensive NeuroScience, Inc.

Hypertension in Patients with Schizophrenia

The purpose of this guide is to provide case managers and physicians with information to facilitate treatment of individuals with serious and persistent mental illness who also have co-occurring substance abuse disorder. The guide presents an overview of current research and clinical recommendations for schizophrenic patients with hypertension.

Introduction: Blood pressure is the force of blood pressing against the walls of arteries (blood vessels that carry blood). This is analogous for example, to the pressure exerted on a garden hose by the water traveling through that hose. Two numbers are used to measure blood pressure. The top number is known as the systolic blood pressure, the bottom number is the diastolic blood pressure. The systolic blood pressure measures the force (pressure) exerted on blood vessels when the heart contracts (pumps blood through out the body). The diastolic blood pressure measures the force exerted when the heart relaxes. A normal systolic blood pressure should be about 130 to 140, while a normal diastolic blood pressure should be between 75 and 80.

A person's blood pressure reading may vary from day-to-day and from hour-to-hour on any given day. Factors such as stress, exercise, or caffeine may temporarily raise someone's pressure and the body can accommodate such temporary elevations in blood pressure. However, if the blood pressure is consistently elevated (i.e. greater than 140/90 on more than three different occasions) then the patient should be considered hypertensive (high blood pressure).

Point to Case Manager 1: A patient with a systolic blood pressure greater than 140 mm Hg. and/or a diastolic blood pressure greater than 90 mm Hg. on three separate readings considered to have hypertension. Even if only one number (systolic or diastolic) is consistently above these levels, the patient should be diagnosed with hypertension.

Hypertension is common; it is estimated that one in every four Americans have hypertension. In some racial groups, such as African Americans, hypertension may occur even more frequently. Unfortunately, despite the fact that hypertension is common in this country and the fact that there are several effective medications to treat hypertension, it still remains significantly undetected and under treated. For example, about 55-60% of patients with hypertension are receiving any treatment for their blood pressure and only 35% of those treated are adequately controlled.

Although patients with schizophrenia have several factors putting them at risk for developing hypertension, such as obesity, smoking, and alcohol abuse, several studies have failed to demonstrate an increased rate of hypertension in patients with schizophrenia. Because hypertension is very common in the general population, and patients with mental illness tend to receive inadequate medical care, the case manager taking care of any patient with schizophrenia needs to: (1) assure that every patient with schizophrenia is screened for hypertension, (2) assure that every schizophrenic patient with hypertension is appropriately managed, (3) monitor adherence to anti-hypertensive medications as well as the presence of any side effects from these medications, (4) educate the patient about hypertension, and (5) provide any relevant information about the patient's hypertension to his/her provider.

Point to Case Manager 2: Although hypertension does not occur more frequently in patients with schizophrenia, the fact that such patients have many other risk factors for developing hypertension suggests that case managers should screen every schizophrenic patient for hypertension and should assure that proper care is delivered if it is present.

(1) Screening for Hypertension:

Hypertension is also known as the silent killer, because most of the times, most patients with hypertension will not have symptoms. Thus, as opposed to other chronic illnesses such as diabetes or asthma, there are no signs or symptoms to alert a case manager that hypertension is present.

The best way to screen for hypertension is to take pressure readings at various times during the day. Nowadays blood pressure can also be measured at home or in pharmacies with blood pressure machines. Although it is possible to measure blood pressure at home using a stethoscope and a blood pressure meter or with an automated device, the diagnosis of hypertension should be made by a physician.

Point to Case Manager 3: If a patient has multiple elevated blood pressure readings but has NOT been diagnosed with hypertension, the case manager needs to refer this patient to a health care professional for an official evaluation and management plan.

Sometimes, a patient may have elevated blood pressure readings that are not necessarily due to hypertension, but other factors that influenced the blood pressure reading at the time the blood pressure was taken.

Such factors may include:

- Cuff size too small
- Caffeine ingestion prior to measuring the blood pressure
- Physical exertion (such as rushing to the doctor's office) or smoking prior to measuring the blood pressure.
- Taking the blood pressure in a cold room
- White Coat syndrome

If the case manager is taking the blood pressure, he/she should try to ensure that none of the factors listed above are influencing the blood pressure reading.

The initial evaluation of someone first diagnosed with hypertension should focus on determining if some other disease is causing the hypertension. This occurs only in a small proportion (less than 10%) of people with high blood pressure and is known as secondary hypertension. Every patient with hypertension should have a thorough physical and lab work documented in the chart. Some clues that an elevated blood pressure may be secondary to some other more serious condition include:

- Severe hypertension that is difficult to treat
- A rapid rise in a blood test known as the creatinine
- Occasional rapid elevations in blood pressure, especially if associated with headaches, palpitations and sweating.
- Unexplained elevated blood potassium levels
- The presence of thyroid disease (both low thyroid levels and high thyroid levels can elevate blood pressure).

Point to Case Manager 4: Although it is NOT the responsibility of the case manager to screen for other (secondary) cause of hypertension, the case manager will need to assure that every patient with schizophrenia that is diagnosed with hypertension has had a thorough physical and the following laboratory tests: chemistry (or metabolic) profile that includes a sodium, potassium and creatinine level, as well as thyroid function tests.

(2) Managing hypertension

There are three goals for managing hypertension and these include: (1) screening and reducing risk factors that may cause or exacerbate hypertension, (2) using medications to lower blood pressure, (3) preventing future health complications of hypertension.

Risk factor reduction: There are several factors that may place a schizophrenic patient at an increased risk for developing primary hypertension. These include:

- Significant family history for hypertension
- Obesity
- Alcohol use
- High sodium (salt) diets
- Cigarette smoking
- Sedentary life style (i.e. the classic “couch potato”)
- Excess stress

The case manager should counsel such patients on weight reduction, moderate exercise, low salt diets, smoking cessation and stress reducing techniques.

Medical management of hypertension: There are many different types of blood pressure medicines that work by different means. Very often one medication may not be adequate to control a patient's blood pressure and as such a combination of different medications are required.

This section will describe the different classes of blood pressure controlling medications as well as their mechanism of action.

Blood Pressure controlling medications fall into the following categories:

- Diuretics: work by causing the kidneys to get rid of excess water and salt from the body. As such, these medications are also commonly referred to as “water pills”.
- Beta-blockers: work on the heart causing it to beat slower and with less force. As a result, these medications reduce the pressure exerted on the blood vessels.
- Angiotensin converting enzyme (ACE) inhibitors: these medications cause blood vessels to dilate or open up and thus decrease the pressure in the vessels.
- Angiotensin antagonists: also cause blood vessels to narrow.
- Calcium channel blockers: causes blood vessels to relax and dilate, bringing pressure down.
- Alpha-blockers: block nerve impulses to the blood vessels, causing such vessels to relax.
- Nervous system inhibitors: decrease the effects of nerves on blood vessels. This results in dilation and lowering of blood pressure.
- Vasodilators: open blood vessels by relaxing the muscles in the vessel walls.

The case manager will need to keep track of not only which medications the patient currently is taking to control his/her blood pressure, but also what medications have been tried in the past and the reason they were discontinued.

Although there is no general rule as to which anti-hypertension medication to start a particular patient on, there are certain patients that can benefit from very specific classes of medications. These include:

- Diabetic patients: angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB) have been shown to have a protective effect on the diabetic patients' kidneys.
- Heart Failure: there appears to be good clinical evidence suggesting that ACE-inhibitors are effective in preventing and reversing certain types of heart failure. These are usually used with a diuretic.
- Older patients with isolated systolic hypertension: Low-dose diuretics have been shown to be effective in the treatment of isolated systolic hypertension.
- After myocardial infarction (heart attack): there is evidence suggesting these patients should be treated with a beta-blocker, because they reduce the risk for a subsequent myocardial infarction (heart attack) or sudden cardiac death.

Point to Case Manager 5: The case manager should assure that every schizophrenic patient with hypertension who also: (a) has diabetes or heart failure is on an ACE-inhibitor or ARB, (b) sustained a heart attack is on a beta-blocker, or (c) is a geriatric patient with isolated systolic high blood pressure is on a low dose diuretic. These medications should be started on such patients provided there are no medical contraindications for doing so. In many cases, more than one medication will be necessary to control blood pressure.

The case manager should also assure that certain laboratory tests are followed when certain medications are given. These include:

- Diuretics: These may cause dehydration, especially in the elderly. Renal (kidney) function tests such as BUN, creatinine and electrolyte levels in blood need to be followed. These medications can also raise the blood uric acid level, which in certain cases may cause or exacerbate a gout attack. Thus, uric acid blood levels need to be monitored.
- Beta-blockers: No blood tests are required. However, these medications can lower the heart rate (pulse), so vital signs should be carefully monitored. These medications should also be used cautiously in patients with asthma (and avoided if possible) since they may exacerbate an asthma attack.
- ACE-inhibitors or ARBs: may in certain cases worsen renal function or elevate blood potassium levels. Thus, the BUN, creatinine and potassium levels should be monitored.

Preventing future health complications of hypertension: Five major complications have been associated with hypertension. These include: (1) Heart Disease: Left Ventricular Hypertrophy (enlarged left ventricle of the heart), Coronary Artery Disease and/or Myocardial Infarction (Heart attack), Heart Failure. (2) Stroke or Transient Ischemic Attack; (3) Kidney damage; (4) Peripheral Artery Disease (damage to vessels supplying legs and toes); (5) Damage to the blood vessels in the eye, although rare, may lead to blindness. Initial evaluation of the hypertensive schizophrenic patient should also look for any of these complications.

The case manager taking care of such patients needs to assure that the following have been done:

- Baseline EKG to evaluate the presence of an enlarged left ventricle of the heart, the presence of a previous heart attack or an abnormality in the rhythm of the heart.
- Other risk factors for cardiovascular disease should be evaluated and if present, managed aggressively (these include: high cholesterol, smoking, diabetes, obesity and sedentary lifestyles).
- Serum creatinine and urinalysis should be obtained to evaluate for the presence of kidney damage.
- An eye exam should be done annually (preferably by an ophthalmologist) to screen for any damage to the vessels in the back of the eye (retina).

- Peripheral pulses (pulses in the legs) should be examined and patients should be questioned about calf pain when walking that resolves at rest, to screen for the presence of peripheral vascular disease.

Point to Case Manager 6: *Although it is beyond the scope of responsibility for the case manager to screen for complications of hypertension, he/she should ensure these assessments occur regularly as part of the care provided by the physician treating the patient.*

(3) Monitor adherence to anti-hypertension medications as well as the presence of any side effects from these medications.

The case manager may consider asking the following series of questions at regular appointments with patients with a history of hypertension:

- *Do you know which of your medications are being used to control your blood pressure? (Correct any misconceptions)*
- *Can you tell me when and how often you are supposed to take each of these medications? (Correct any misconceptions)*
- *Everyone tends to miss taking his/her medication every now and then. Has that happened to you? How often do you miss taking each of your blood pressure pills within a given week?*
- *Have you experienced any side effects from your medications that you wish to tell me about?*

(4) Educate the patient about hypertension.

The American Heart Association has published: **Ten Ways to Control Your High Blood Pressure-**

1. [Know your blood pressure](#). Have it checked regularly.
2. [Know what your weight should be](#). Keep it at that level or below.
3. Don't use too much salt in cooking or at meals. [Avoid salty foods](#).
4. Eat a diet low in saturated fat according to [American Heart Association recommendations](#).
5. [Control alcohol intake](#). Don't have more than one drink a day for women or two a day for men.
6. [Take your medicine](#) exactly as prescribed. Don't run out of pills even for a single day.
7. [Keep appointments with the doctor](#).
8. Follow your doctor's advice about [physical activity](#).
9. Make certain your parents, brothers, sisters and children have their [blood pressure checked regularly](#).
10. [Live](#) a normal life in every other way.

Source: <http://www.americanheart.org/presenter.jhtml?identifier=578>

They also provide the following checklist to patients: **Checklist for Living with High Blood Pressure**

- Don't be scared of high blood pressure. It can be treated.
- Do the simple things that your doctor suggests. Simple measures, such as losing weight or eating less salt, may produce good results.
- Don't go from one doctor to the next, looking for a quick, easy "miracle drug." Stick to one reliable doctor or clinic and follow through with your treatment plan.
- If you're on medication, be patient and don't stop treatment. If you have side effects, tell your doctor.
- Give yourself a chance to adjust to a drug. It may take several weeks, but the results will usually be worth it.
- Death rates from heart and blood vessel diseases, stroke and kidney diseases have decreased significantly. This is probably due to earlier and better treatment of high blood pressure.

Source: <http://www.americanheart.org/presenter.jhtml?identifier=854>

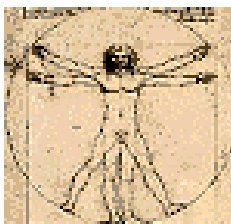
Point to Case Manager 7: Teaching patients about hypertension improves adherence to treatment and decreases future medical complications.

(5) Provide any relevant information about the patient's hypertension to his/her provider.

The following page summarizes the type of information that the case manager may want to provide a medical provider about the patient with schizophrenia and hypertension. It is meant only as a guide.

If a patient's hypertension is not adequately controlled, the following web site provides information on medical clinics (by region) throughout the state of Missouri that can appropriately manage such patients.

http://www.communityconnection.org/ccver2/go_local_location_page.jsp?mplus_topic_id=34



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Point to Case Manager 6: Although it is beyond the scope of responsibility for the case manager to screen for complications of hypertension, he/she should ensure these assessments occur regularly as part of the care provided by the physician treating the patient.

Point to Case Manager 7: Teaching patients about hypertension improves adherence to treatment and decreases future medical complications.